AMENDMENTS IN THE CLAIMS

Listing of Claims

1-108. Cancelled.

109. (Withdrawn) A composite particle, comprising:
an absorbent material formed into a particle; and
at least one performance-enhancing active added to the absorbent material.

110. (Withdrawn) A composite particle as recited in claim 109, wherein the absorbent material is a liquid-absorbing material and is selected from a group consisting of: a mineral, fly ash, absorbing pelletized material, perlite, silica, organic materials, and mixtures thereof.

111. (Withdrawn) A composite particle as recited in claim 110, wherein the absorbent material is a mineral selected from a group consisting of: bentonite, zeolite, montmorillonite, diatomaceous earth, opaline silica, Georgia White clay, sepiolite, calcite, dolomite, slate, pumice, tobermite, marls, attapulgite, kaolinite, halloysite, smectite, vermiculite, hectorite, Fuller's earth, fossilized plant materials, expanded perlite, gypsum, and mixtures thereof.

112. (Withdrawn) A composite particle as recited in claim 109, wherein the absorbent material comprises sodium bentonite granules having a mean particle diameter of about 5000 microns or less.

113. (Withdrawn) A composite particle as recited in claim 112, wherein the absorbent material comprises sodium bentonite granules having a mean particle diameter of about 3000 microns or less.

114. (Withdrawn) A composite particle as recited in claim 112, wherein the absorbent material comprises sodium bentonite granules having a mean particle diameter in the range of about 25 to about 150 microns.

115. (Withdrawn) A composite particle as recited in claim 109, wherein the added performance-enhancing active includes at least one of an antimicrobial, an odor reducing material, a binder, a fragrance, a health indicating material, a color altering agent, a dust reducing agent, a nonstick release agent, a superabsorbent material, cyclodextrin, zeolite, activated carbon, a pH altering agent, a salt forming material, a ricinoleate and mixtures thereof.

116. (Withdrawn) A composite particle as recited in claim 109, wherein a performance-enhancing additive is sprayed onto the particles.

117. (Withdrawn) A composite particle as recited in claim 109, wherein granules of a performance-enhancing additive are dry-blended with the particles.

118. (Withdrawn) A composite particle as recited in claim 109, wherein the performance-enhancing active comprises a boron-containing compound.

119. (Withdrawn) A composite particle as recited in claim 118, wherein the boron containing compound is present in an antimicrobially effective amount, wherein the boron containing compound is selected from a group consisting of borax pentahydrate, borax decahydrate, boric acid, polyborate, tetraboric acid, sodium metaborate, anhydrous, boron components of polymers, and mixtures thereof.

120. (Withdrawn) A composite particle as recited in claim 109, wherein the performance-enhancing active inhibits the formation of odor, the active comprising a water soluble metal salt selected from a group consisting of: silver, copper, zinc, iron, and aluminum salts and mixtures thereof.

121. (Withdrawn) A composite particle as recited in claim 109, wherein the performance-enhancing active is present in an effective amount.

122. (Withdrawn) A composite particle as recited in claim 109, wherein the performance-enhancing active is activated carbon.

123. (Withdrawn) A composite particle as recited in claim 122, wherein the activated carbon is present in about 5 weight percent or less based on a weight of the composite particle.

124. (Withdrawn) A composite particle as recited in claim 122, wherein the activated carbon is present in about 1 weight percent or less based on a weight of the composite particle.

125. (Withdrawn) A composite particle as recited in claim 122, wherein the activated carbon has a mean particle diameter of about 5000 microns or less.

126. (Withdrawn) A composite particle as recited in claim 122, wherein the activated carbon has a mean particle diameter of about 1500 microns or less.

127. (Withdrawn) A composite particle as recited in claim 122, wherein the activated carbon has a mean particle diameter of about 50 microns or less.

128. (Withdrawn) A composite particle as recited in claim 109, wherein the at least one performance-enhancing active is substantially homogeneously dispersed throughout at least a portion of the absorbent material.

129. (Withdrawn) A composite particle as recited in claim 109, wherein the at least one performance-enhancing active is physically dispersed in at least one layer.

130. (Withdrawn) A composite particle as recited in claim 109, wherein the performance-enhancing active is physically dispersed in pockets in the particle.

131. (Withdrawn) A composite particle as recited in claim 109, wherein the performance-enhancing active is physically dispersed in at least one position selected from along surfaces of the particle and contained within pores of the particle.

132. (Withdrawn) A composite particle as recited in claim 109, further comprising an absorbent core, the absorbent material being coupled to the core.

133. (Withdrawn) A composite particle as recited in claim 109, further comprising a non-absorbent core, the absorbent material being coupled to the core.

134. (Withdrawn) A composite particle as recited in claim 109, further comprising a hollow core, the absorbent material being coupled to the core.

135. (Withdrawn) A composite particle as recited in claim 109, further comprising a core, the absorbent material at least partially surrounding the core in the form of a shell, wherein an average thickness of the shell is at least about four times an average diameter of the core.

136. (Withdrawn) A composite particle as recited in claim 109, further comprising a core, the absorbent material at least partially surrounding the core in the form of a shell, wherein an average thickness of the shell is between about 1 and about 4 times an average diameter of the core.

137. (Withdrawn) A composite particle as recited in claim 109, further comprising a core, the absorbent material at least partially surrounding the core in the form of a shell, wherein an average thickness of the shell is less than an average diameter of the core.

138. (Withdrawn) A composite particle as recited in claim 109, further comprising a core, the absorbent material at least partially surrounding the core in the form of a shell, wherein an average thickness of the shell is less than about one-half an average diameter of the core.

139. (Withdrawn) A composite particle as recited in claim 109, further comprising a heavy core comprised of a material having a density higher than a density of the absorbent material, the absorbent material being coupled to the core.

140. (Withdrawn) A composite particle as recited in claim 109, further comprising a lightweight core comprised of a material having a density lower than a density of the absorbent material, the absorbent material being coupled to the core.

141. (Withdrawn) A composite particle as recited in claim 109, further comprising a core comprised of a pH-altering material, the absorbent material being coupled to the core.

142. (Withdrawn) A composite particle as recited in claim 109, wherein the particle has a bulk density of less than about 90% of a bulk density of a generally solid particle containing the absorbent material alone.

143. (Withdrawn) A composite particle as recited in claim 109, wherein the particle has a bulk density of less than about 70% of a bulk density of a generally solid particle containing the absorbent material alone.

144. (Withdrawn) A composite particle as recited in claim 109, wherein the particle has a bulk density of less than about 50% of a bulk density of a generally solid particle containing the absorbent material alone.

145. (Withdrawn) A composite particle as recited in claim 109, further comprising multiple cores, the absorbent material being coupled to the cores.

146. (Withdrawn) A composite particle as recited in claim 109, wherein the composite particle has a hydraulic conductivity value of about 0.25 cm/s or less.

147. (Withdrawn) A composite particle as recited in claim 109, wherein the composite particle exhibits reduced sticking to a container in which the composite particle rests when the particle is wetted relative to a generally solid particle under substantially similar conditions.

148. (Withdrawn) A composite particle as recited in claim 109, wherein the composite particle has a moisture content of less than about 25% by weight based on a weight of the composite particle.

149. (Withdrawn) A composite particle as recited in claim 109, wherein the composite particle has a moisture content of less than about 15% by weight based on a weight of the composite particle.

150. (Withdrawn) A composite particle as recited in claim 109, wherein the composite particle has a moisture content of less than about 10% by weight based on a weight of the composite particle.

151. (Withdrawn) A composite particle as recited in claim 109, wherein the composite particle is capable of absorbing a weight of water equaling at least about 90 percent of a weight of the composite particle.

152. (Withdrawn) A composite particle as recited in claim 109, wherein the composite particle is capable of absorbing a weight of water equaling at least about 75 percent of a weight of the composite particle.

153. (Withdrawn) A composite particle as recited in claim 109, wherein the composite particle is capable of absorbing a weight of water equaling at least about 50 percent of a weight of the composite particle.

154. (Withdrawn) A composite particle as recited in claim 109, wherein the composite particle has a dusting attrition value of at most about 15% as measured by ASTM method E-728 Standard Test Method for Resistance to Attrition of Granular Carriers and Granular Pesticides.

155. (Withdrawn) A composite particle as recited in claim 109, wherein the composite particle has a malodor rating below about 15 as determined by a Malodor Sensory Method.

156. (Withdrawn) A composite particle as recited in claim 109, wherein the composite particle exhibits noticeably less odor after four days from contamination with animal waste as compared to a generally solid particle of the absorbent material alone under substantially similar conditions.

157. (Withdrawn) A composite particle as recited in claim 109, wherein the composite particle has been formed by an agglomeration process.

158. (Withdrawn) A composite particle as recited in claim 157, wherein the agglomeration process is a pan agglomeration process.

159. (Withdrawn) A composite particle as recited in claim 159, wherein the agglomeration process is at least one of a high shear agglomeration process, a low shear agglomeration process, a high pressure agglomeration process, a low pressure agglomeration process, a rotary drum agglomeration process, a fluid bed agglomeration

process, a mix muller process, a roll press compaction process, a pin mixer process, a batch tumble blending mixer process, an extrusion process and a fluid bed process.

160. (Withdrawn) A composite particle as recited in claim 109, wherein the composite particle has a bulk density of about 1.5 grams per cubic centimeter or less.

161. (Withdrawn) A composite particle as recited in claim 109, wherein the composite particle has a bulk density of 0.85 grams per cubic centimeter or less

162. (Withdrawn) A composite particle as recited in claim 161, wherein the composite particle has a bulk density of between about 0.25 and 0.85 grams per cubic centimeter .

163. (Withdrawn) A composite particle as recited in claim 109, wherein the particle has a liquid absorbing capability of from about 0.6 to about 2.5 liters of water per kilogram of particles.

164. (Withdrawn) A composite particle as recited in claim 109, wherein the particle is used in at least one of an animal litter product, a laundry product, a home care product, a water filtration product, an air filtration product, a fertilizer product, an iron ore pelletizing product, a pharmaceutical product, an agricultural product, a waste and landfill remediation product, a bioremediation product, and an insecticide product.

165. (Withdrawn) Multiple composite particles as recited in claim 109, wherein substantially each particle includes the active.

166. (Withdrawn) Multiple composite particles as recited in claim 109, wherein substantially each particle includes multiple actives.

167. (Withdrawn) Multiple composite particles as recited in claim 109, wherein some of the particles include a first active, and other particles contain a second active, the second active being different than the first active.

168. (Withdrawn) Multiple composite particles as recited in claim 109, wherein at least about 80% of the particles are retained in a clump upon addition of an aqueous solution.

169. (Withdrawn) Multiple composite particles as recited in claim 109, wherein at least about 90% of the particles are retained in a clump upon addition of an aqueous solution.

170. (Withdrawn) Multiple composite particles as recited in claim 109, wherein at least about 95% of the particles are retained in a clump after 6 hours upon addition of 10 ml of cat urine.

171. (Withdrawn) Composite particles having improved clumping characteristics, comprising:

granules of an absorbent material formed into particles, each particle having areas of more-water-soluble absorbent material and less-water-soluble absorbent material relative to each other, the areas of more-water-soluble absorbent material being capable of dislodging from the associated particle when wetted and becoming entrained between adjacent particles, the entrained absorbent material forming a bond between the adjacent particles.

172. (Withdrawn) Composite particles as recited in claim 171, wherein the absorbent material is sodium bentonite having a mean particle diameter of about 1000 microns or less.

173. (Withdrawn) Composite particles as recited in claim 172, wherein the sodium bentonite has a mean particle diameter in the range of about 25 to about 150 microns.

174. (Withdrawn) Composite particles as recited in claim 171, further comprising a performance-enhancing active, wherein the performance-enhancing active includes at least one of an antimicrobial, an odor reducing material, a binder, a fragrance, a health indicating material, a color altering agent, a dust reducing agent, a nonstick release agent, a superabsorbent material, cyclodextrin, zeolite, activated carbon, a pH altering agent, a salt forming material, a ricinoleate and mixtures thereof.

175. (Withdrawn) Composite particles as recited in claim 171, wherein a performance-enhancing additive is sprayed onto the particles.

176. (Withdrawn) Composite particles as recited in claim 171, wherein granules of a performance-enhancing additive is dry-blended with the particles, with or without addition of a binder.

177. (Withdrawn) Composite particles having improved odor reducing characteristics, comprising:

granules of an absorbent material; and

granules of an odor reducing active added to the absorbent material;

wherein pores are formed between the granules of the absorbent material such that at least some of the granules of the odor reducing active positioned towards a center of the particle are in fluid or gaseous communication with an outer atmosphere surrounding the particle.

178. (Withdrawn) A composite particle as recited in claim 177, wherein the odor reducing active is activated carbon.

179. (Withdrawn) A composite particle as recited in claim 178, wherein the activated carbon is present in about 5 weight percent or less based on a weight of the composite particle.

180. (Withdrawn) A composite particle as recited in claim 178, wherein the activated carbon is present in about 1 weight percent or less based on a weight of the composite particle.

181. (Withdrawn) A composite particle as recited in claim 178, wherein the activated carbon has a mean particle diameter of about 500 microns or less.

182. (Withdrawn) A composite particle as recited in claim 178, wherein the activated carbon has a mean particle diameter in the range of about 25 to 150 microns.

183. (Withdrawn) A composite particle as recited in claim 177, wherein the odor reducing active comprising a water soluble metal salt selected from a group consisting of: silver, copper, zinc, iron, and aluminum salts and mixtures thereof.

184. (Withdrawn) An animal litter, comprising:

an absorbent material formed into a particle;

activated carbon added to the absorbent material; and

optionally at least one other performance-enhancing active added to the absorbent material.

185. (Withdrawn) The animal litter as recited in claim 184, wherein the activated carbon is present in about 1 weight percent or less based on a weight of the animal litter.

186. (Currently Amended) A plurality of composite particles comprising:

a mixture of bentonite ~~and~~ , expanded perlite and activated carbon formed into a plurality of homogeneously agglomerated composite particles suitable for use as an animal litter, wherein substantially each homogeneously agglomerated composite particle contains a percentage of bentonite ~~and~~ , a percentage of expanded perlite and a percentage of activated carbon,

wherein the clump strength, an indication of the percentage of particles retained in a clump after six hours upon addition of an aqueous solution, is greater than 90%.

187. (Cancelled)

188. (Cancelled)

189. (Currently Amended) The plurality of composite particles recited in claim ~~187~~186, wherein the activated carbon is powdered activated carbon (PAC).

190. (Currently Amended) The plurality of composite particles as recited in claim ~~187~~189, wherein the activated carbon is present in about 5 weight percent or less.

191. (Previously Presented) The plurality of composite particles as recited in claim 186, wherein said homogeneously agglomerated composite particles range in size from 100 μm to 10 mm.

192. (Previously Presented) The plurality of composite particles as recited in claim 186, wherein said homogeneously agglomerated composite particles range in size from 400-1650 μm.

193. (Cancelled)

194. (Cancelled)

195. (Currently Amended) The plurality of composite particles as recited in claim 186, wherein said homogeneously agglomerated composite particles have ~~having~~ a bulk density ~~between 0.35-~~ less than 0.5 g/cc.

196. (Cancelled)

197. (Currently Amended) The plurality of composite particles recited in claim 186, further comprising at least one of an antimicrobial, an odor control boron-containing material, a binder, a fragrance, a health ~~incicating~~indicating material, a color altering agent, a dust reducing agent, a nonstick release agent, a superabsorbent material, cyclodextrin, zeolite, a pH altering agent, a salt forming material, a ricinoleate and mixtures thereof.

198. (New) The plurality of composite particles recited in claim 186, wherein the composite particles have a moisture content of less than about 15% by weight based on a weight of the composite particle.

199. (New) The plurality of composite particles recited in claim 186, wherein the composite particles have a moisture content of less than about 10% by weight based on a weight of the composite particle.

200. (New) The plurality of composite particles recited in claim 186, wherein the plurality of homogeneously agglomerated composite particles have a hydraulic conductivity value of about 0.25 cm/s or less.

201. (New) The plurality of composite particles recited in claim 186, wherein the composite particle is capable of absorbing a weight of water equaling at least about 90 percent of a weight of the composite particle.

202. (New) The plurality of composite particles recited in claim 201, wherein the composite particle is capable of absorbing a weight of water equaling at least about 75 percent of a weight of the composite particle

203. (New) The plurality of composite particles recited in claim 186. wherein the composite particles have a dusting attrition value of at most about 15% as measured by

ASTM method E- 728 Standard Test Method for Resistance to Attrition of Granular Carriers and Granular Pesticides.

204. (New) The plurality of composite particles recited in claim 186, wherein the composite particles have a malodor rating below about 15 as determined by a Malodor Sensory Method.

205. (New) The plurality of composite particles recited in claim 186, wherein the clump strength is greater than 95%.

206. (New) A process for making the plurality of composite particles recited in claim 186, comprising:

adding granules of bentonite and expanded perlite to an agglomerator, wherein the granules of bentonite and expanded perlite each have a particle size smaller than about 1000 microns;

adding granules of an activated carbon to the agglomerator;

adding water to the agglomerator; and

agglomerating the mixture of bentonite, expanded perlite, activated carbon and water to form a plurality of homogeneously agglomerated composite particles of bentonite, expanded perlite, and activated carbon.

207. (New) The process as recited in claim 206, wherein the agglomeration process is at least one of a pan agglomeration, a high shear agglomeration process, a low shear agglomeration process, a high pressure agglomeration process, a low pressure agglomeration process, a rotary drum agglomeration process, a fluid bed agglomeration process, a mix mull1er process, a roll press compaction process, a pin mixer process, a batch tumble blending mixer process, an extrusion process and a fluid bed process.

208. (New) The process as recited in claim 206, further comprising adding granules of at least one of an odor control boron-containing material, an antimicrobial, a binder, a

fragrance, a health indicating material, a color altering agent, a dust reducing agent, a nonstick release agent, a superabsorbent material, cyclodextrin, zeolite, activated carbon, a pH altering agent, a salt forming material, a ricinoleate and mixtures thereof.